



PubMed	Nucleotide	Protein	Genome	Structure	PopSet	Taxonomy	OMIM
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☐ 1: S39358 **cyclin kinase inhibitor - human**  
(fragments)

BLink, PubMed, Related Sequences, Taxonomy

LOCUS S39358 47 aa PRI 17-MAR-1999  
 DEFINITION cyclin kinase inhibitor - human (fragments).  
 ACCESSION S39358  
 PID g481783  
 VERSION S39358 GI:481783  
 DBSOURCE pir: locus S39358;  
 summary: #length 47 #checksum 7286;  
 PIR dates: 25-Feb-1994 #sequence\_revision 17-Nov-1995 #text\_change  
 17-Mar-1999;  
 punctuation in sequence.

KEYWORDS .  
 SOURCE human.  
 ORGANISM Homo sapiens  
 Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;  
 Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.

REFERENCE 1 (residues 1 to 47)  
 AUTHORS Xiong,Y., Hannon,G.J., Zhang,H., Casso,D., Kobayashi,R. and  
 Beach,D.  
 TITLE p21 is a universal inhibitor of cyclin kinases  
 JOURNAL Nature 366 (6456), 701-704 (1993)  
 MEDLINE 94081955

FEATURES Location/Qualifiers  
 source 1..47  
 /organism="Homo sapiens"  
 /db\_xref="taxon:9606"  
 Protein 1..47  
 /product="cyclin kinase inhibitor"

ORIGIN  
 1 lylptgprrg rdelglvprs geqaegsprq tsmtdfyhsk rrlifsk  
 //

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of Medicine

PubMed

PubMed	Nucleotide	Protein	Genome	Structure	PopSet	Taxonomy	OMIM	
Search	PubMed	▼	for				Go	Clear
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☐ 1: *Nature* 1993 Dec 16;366(6456):701-4Related Articles, Books, Protein,  
Nucleotide

PubMed Services

**p21 is a universal inhibitor of cyclin kinases.****Xiong Y, Hannon GJ, Zhang H, Casso D, Kobayashi R, Beach D**

Howard Hughes Medical Institute, Cold Spring Harbor Laboratory, New York 11724.

Related Resources

Deregulation of cell proliferation is a hallmark of neoplastic transformation. Alteration in growth control pathways must translate into changes in the cell-cycle regulatory machinery, but the mechanism by which this occurs is largely unknown. Compared with normal human fibroblasts, cells transformed with a variety of viral oncoproteins show striking changes in the subunit composition of the cyclin-dependent kinases (CDKs). In normal cells, CDKs exist predominantly in multiple quaternary complexes, each containing a CDK, cyclin, proliferating cell nuclear antigen and the p21 protein. However, in many transformed cells, proliferating cell nuclear antigen and p21 are lost from these multiprotein enzymes. Here we have investigated the significance of this phenomenon by molecular cloning of p21 and in vitro reconstitution of the quaternary cell-cycle kinase complexes. We find that p21 inhibits the activity of each member of the cyclin/CDK family. Furthermore, overexpression of p21 inhibits the proliferation of mammalian cells. Our results indicate that p21 may be a universal inhibitor of cyclin kinases.

Comment in:

- *Nature*. 1993 Dec 16;366(6456):634

MeSH Terms:

- Amino Acid Sequence
- Animal
- Base Sequence
- Cell Cycle\*
- Cell Division
- Cell Line
- Cloning, Molecular
- Cyclins/metabolism\*

- Cyclins/isolation & purification
- Cyclins/genetics
- DNA
- Mice
- Molecular Sequence Data
- Moths
- Protein Kinases/antagonists & inhibitors\*
- Protein p53/metabolism
- RNA, Messenger/analysis
- Recombinant Proteins/metabolism
- Recombinant Proteins/isolation & purification
- Recombinant Proteins/genetics
- Support, Non-U.S. Gov't
- Support, U.S. Gov't, P.H.S.

Substances:

- Protein Kinases
- p34PSK-J3 kinase
- DNA
- Recombinant Proteins
- RNA, Messenger
- Protein p53
- Cyclins
- Cip1 protein

PMID: 8259214

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Display	Citation	<input type="button" value="v"/>	Save	Text	Order	Add to Clipboard
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[Department of Health & Human Services](#)  
[Freedom of Information Act](#) | [Disclaimer](#)

RESULT 1  
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 cyclin kinase inhibitor - human (fragments)  
 C;Species: Homo sapiens (man)  
 C;Date: 25-Feb-1994 #sequence\_revision 17-Nov-1995 #text\_change 17-Mar-1999  
 C;Accession: S39358  
 R;Xiong, Y.; Hannon, G.J.; Zhang, H.; Casso, D.; Kobayashi, R.; Beach, D.  
 Nature 366, 701-704, 1993  
 A;Title: p21 is a universal inhibitor of cyclin kinases.  
 A;Reference number: S39357; MUID:94081955  
 A;Accession: S39358  
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 A;Molecule type: protein  
 A;Residues: 1-47 <XIO>

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Qy 1 KRRLIFSK 8  
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 Db 40 KRRLIFSK 47

RESULT 2  
 A49437  
 cyclin-dependent kinase inhibitor - human  
 N;Alternate names: probable DNA synthesis inhibitor  
 C;Species: Homo sapiens (man)  
 C;Date: 26-Jul-1996 #sequence\_revision 26-Jul-1996 #text\_change 08-Oct-1999  
 C;Accession: A49437; I53412; S39357  
 R;Harper, J.W.; Adami, G.R.; Wei, N.; Keyomarsi, K.; Elledge, S.J.  
 Cell 75, 805-816, 1993  
 A;Title: The p21 Cdk-interacting protein Cipl is a potent inhibitor of G1 cyclin-dependent kinases.  
 A;Reference number: A49437; MUID:94061996  
 A;Accession: A49437  
 A;Status: preliminary; translated from GB/EMBL/DDBJ  
 A;Molecule type: mRNA  
 A;Residues: 1-164 <RES>  
 A;Cross-references: GB:L25610; NID:g425142; PIDN:AAA16109.1; PID:g425143  
 R;Noda, A.; Ning, Y.; Venable, S.F.; Pereira-Smith, O.M.; Smith, J.R.  
 Exp. Cell Res. 211, 90-98, 1994  
 A;Title: Cloning of senescent cell-derived inhibitors of DNA synthesis using an expression screen.  
 A;Reference number: I53412; MUID:94170884  
 A;Accession: I53412  
 A;Status: preliminary; translated from GB/EMBL/DDBJ  
 A;Molecule type: mRNA  
 A;Residues: 1-164 <RE2>  
 A;Cross-references: GB:L26165; NID:g418017; PIDN:AAA19811.1; PID:g433742  
 R;Xiong, Y.; Hannon, G.J.; Zhang, H.; Casso, D.; Kobayashi, R.; Beach, D.  
 Nature 366, 701-704, 1993  
 A;Title: p21 is a universal inhibitor of cyclin kinases.  
 A;Reference number: S39357; MUID:94081955  
 A;Accession: S39357  
 A;Status: preliminary  
 A;Molecule type: mRNA  
 A;Residues: 1-164 <XIO>  
 A;Cross-references: GB:S67388; NID:g453134; PIDN:AAB29246.1; PID:g453135

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 Best Local Similarity 100.0%; Pred. No. 0.21;  
 Matches 8; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 KRRLIFSK 8  
 |||||  
 Db 154 KRRLIFSK 161

RESULT 3

I54380

cyclin-dependent kinase - human (fragment)

C;Species: Homo sapiens (man)

C;Date: 02-Jul-1996 #sequence\_revision 02-Jul-1996 #text\_change 21-Jul-2000

C;Accession: I54380

R;Mousses, S.; Ozcelik, H.; Lee, P.D.; Malkin, D.; Bull, S.B.; Andrulis, I.L.

Hum. Mol. Genet. 4, 1089-1092, 1995

A;Title: Two variants of the CIP1/WAF1 gene occur together and are associated with human cancer.

A;Reference number: I54380; MUID:95384154

A;Accession: I54380

A;Status: preliminary; translated from GB/EMBL/DDBJ

A;Molecule type: mRNA

A;Residues: 1-181 <RES>

A;Cross-references: GB:L47232; NID:g984723; PIDN:AAB59559.1; PID:g984724

C;Genetics:

A;Gene: CIP1/WAF1

Query Match 100.0%; Score 38; DB 2; Length 181;  
Best Local Similarity 100.0%; Pred. No. 0.23;  
Matches 8; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 KRRLIFSK 8  
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Db 171 KRRLIFSK 178

RESULT 4

I68674

cyclin-dependent kinase - human (fragment)

C;Species: Homo sapiens (man)

C;Date: 04-Oct-1996 #sequence\_revision 04-Oct-1996 #text\_change 21-Jul-2000

C;Accession: I68674

R;Mousses, S.; Ozcelik, H.; Lee, P.D.; Malkin, D.; Bull, S.B.; Andrulis, I.L.

Hum. Mol. Genet. 4, 1089-1092, 1995

A;Title: Two variants of the CIP1/WAF1 gene occur together and are associated with human cancer.

A;Reference number: I54380; MUID:95384154

A;Accession: I68674

A;Status: preliminary; translated from GB/EMBL/DDBJ

A;Molecule type: mRNA

A;Residues: 1-181 <RES>

A;Cross-references: GB:L47233; NID:g986878; PIDN:AAB59560.1; PID:g986879

C;Genetics:

A;Gene: CIP1/WAF1

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Matches 8; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 KRRLIFSK 8  
| | | | | | | |  
Db 171 KRRLIFSK 178

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ID CDN1\_FELCA STANDARD; PRT; 164 AA.

AC O19002;

DT 15-DEC-1998 (Rel. 37, Created)

DT 15-DEC-1998 (Rel. 37, Last sequence update)

DT 15-DEC-1998 (Rel. 37, Last annotation update)

DE CYCLIN-DEPENDENT KINASE INHIBITOR 1 (P21) (CDK-INTERACTING PROTEIN 1).

GN CDKN1A OR CIP1 OR WAF1.

OS Felis silvestris catus (Cat).

OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;

OC Mammalia; Eutheria; Carnivora; Fissipedia; Felidae; Felis.  
 RN [1]  
 RP SEQUENCE FROM N.A.  
 RC TISSUE=LYMPH NODE;  
 RX MEDLINE=98036042; PubMed=9370275;  
 RA Okuda M., Minehata K., Setoguchi A., Cho K.-W., Nakamura N.,  
 RA Nishigaki K., Watari T., Cevario S., O'Brien S.J., Tsujimoto H.,  
 RA Hasegawa A.;  
 RT "Cloning and chromosome mapping of the feline genes p21WAF1 and  
 RT p27Kip1.";  
 RL Gene 198:141-147(1997).  
 CC -!- FUNCTION: MAY BE THE IMPORTANT INTERMEDIATE BY WHICH P53 MEDIATES  
 CC ITS ROLE AS AN INHIBITOR OF CELLULAR PROLIFERATION IN RESPONSE TO  
 CC DNA DAMAGE. MAY BIND TO AND INHIBIT CYCLIN-DEPENDENT KINASE  
 CC ACTIVITY, PREVENTING PHOSPHORYLATION OF CRITICAL CYCLIN-DEPENDENT  
 CC KINASE SUBSTRATES AND BLOCKING CELL CYCLE PROGRESSION (BY  
 CC SIMILARITY).  
 CC -!- SUBCELLULAR LOCATION: NUCLEAR.  
 CC -!- SIMILARITY: THE N-TERMINAL OF CIP1 AND KIP ARE SIMILAR.  
 CC -----  
 CC This SWISS-PROT entry is copyright. It is produced through a collaboration  
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 CC or send an email to [license@isb-sib.ch](mailto:license@isb-sib.ch)).  
 CC -----  
 DR EMBL; D84650; BAA23168.1; -.  
 KW Cell cycle; Nuclear protein; Zinc-finger.  
 FT ZN\_FING 13 41 C4-TYPE (POTENTIAL).  
 FT DOMAIN 141 156 NUCLEAR LOCALIZATION SIGNAL (POTENTIAL).  
 SQ SEQUENCE 164 AA; 18315 MW; 0F7912A76C78BF38 CRC64;

Query Match 100.0%; Score 38; DB 1; Length 164;  
 Best Local Similarity 100.0%; Pred. No. 0.087;  
 Matches 8; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 KRRLIFSK 8  
 |||||  
 Db 154 KRRLIFSK 161

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 AC P38936;  
 DT 01-FEB-1995 (Rel. 31, Created)  
 DT 01-FEB-1995 (Rel. 31, Last sequence update)  
 DT 15-DEC-1998 (Rel. 37, Last annotation update)  
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 DE ASSOCIATED PROTEIN 6) (MDA-6) (P21) (CDK-INTERACTING PROTEIN 1).  
 GN CDKN1A OR CDKN1 OR CIP1 OR WAF1 OR MDA6 OR SDI1 OR PIC1 OR CAP20.  
 OS Homo sapiens (Human).  
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;  
 OC Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.  
 RN [1]  
 RP SEQUENCE FROM N.A.  
 RX MEDLINE=94061996; PubMed=8242751;  
 RA Harper J.W., Adami G.R., Wei N., Keyomarsi K., Elledge S.J.;  
 RT "The p21 Cdk-interacting protein Cip1 is a potent inhibitor of G1  
 RT cyclin-dependent kinases.";  
 RL Cell 75:805-816(1993).  
 RN [2]  
 RP SEQUENCE FROM N.A.  
 RX MEDLINE=94061997; PubMed=8242752;  
 RA El-Deiry W.S., Tokino T., Velculescu V.E., Levy D.B., Parsons R.,  
 RA Trent J.M., Lin D., Mercer W.E., Kinzler K.W., Vogelstein B.;  
 RT "WAF1, a potential mediator of p53 tumor suppression.";  
 RL Cell 75:817-825(1993).

RN [3]  
 RP SEQUENCE FROM N.A.  
 RX MEDLINE=94081955; PubMed=8259214;  
 RA Xiong Y., Hannon G.J., Zhang H., Casso D., Kobayashi R., Beach D.;  
 RT "p21 is a universal inhibitor of cyclin kinases."  
 RL Nature 366:701-704(1993).  
 RN [4]  
 RP SEQUENCE FROM N.A.  
 RA Jiang H., Fisher P.B.;  
 RT "Use of a sensitive and efficient subtraction hybridization protocol  
 RT for the identification of genes differentially regulated during the  
 RT induction of differentiation in human melanoma cells."  
 RL Mol. Cell. Differ. 1:285-299(1993).  
 RN [5]  
 RP SEQUENCE FROM N.A.  
 RA Jiang H., Lin J., Herlyn M., Kerbel R.S., Weissman B.E.,  
 RA Welch D.R., Fisher P.B.;  
 RL Submitted (MAY-1994) to the EMBL/GenBank/DDBJ databases.  
 RN [6]  
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 RX MEDLINE=94170884; PubMed=8125163;  
 RA Noda A., Ning Y., Venable S.F., Pereira-Smith O.M., Smith J.R.;  
 RT "Cloning of senescent cell-derived inhibitors of DNA synthesis using  
 RT an expression screen."  
 RL Exp. Cell Res. 211:90-98(1994).  
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 RA Mousses S., Oezcelik H., Lee P.D., Malkin D., Bull S.B.,  
 RA Andrulis I.L.;  
 RT "Two variants of the CIP1/WAF1 gene occur together and are associated  
 RT with human cancer."  
 RL Hum. Mol. Genet. 4:1089-1092(1995).  
 RN [8]  
 RP SEQUENCE FROM N.A.  
 RA Palmer S.;  
 RL Submitted (JUL-1997) to the EMBL/GenBank/DDBJ databases.  
 RN [9]  
 RP X-RAY CRYSTALLOGRAPHY (2.6 ANGSTROMS) OF 139-160.  
 RX MEDLINE=97015085; PubMed=8861913;  
 RA Gulbis J.M., Kelman Z., Hurwitz J., O'Donnell M., Kuriyan J.;  
 RT "Structure of the C-terminal region of p21(WAF1/CIP1) complexed with  
 RT human PCNA."  
 RL Cell 87:297-306(1996).  
 CC -!- FUNCTION: MAY BE THE IMPORTANT INTERMEDIATE BY WHICH P53 MEDIATES  
 CC ITS ROLE AS AN INHIBITOR OF CELLULAR PROLIFERATION IN RESPONSE TO  
 CC DNA DAMAGE. MAY BIND TO AND INHIBIT CYCLIN-DEPENDENT KINASE  
 CC ACTIVITY, PREVENTING PHOSPHORYLATION OF CRITICAL CYCLIN-DEPENDENT  
 CC KINASE SUBSTRATES AND BLOCKING CELL CYCLE PROGRESSION.  
 CC -!- SUBCELLULAR LOCATION: NUCLEAR.  
 CC -!- TISSUE SPECIFICITY: IS EXPRESSED IN ALL ADULT HUMAN TISSUES,  
 CC WITH 5-FOLD LOWER LEVELS OBSERVED IN THE BRAIN.  
 CC -!- INDUCTION: BY THE P53 TUMOR SUPPRESSOR/ONCOGENE. ALSO BY MEZEREIN  
 CC (ANTILEUKEMIC COMPOUND) AND BY IFN-BETA.  
 CC -!- SIMILARITY: THE N-TERMINAL OF CIP1 AND KIP ARE SIMILAR.  
 CC -----  
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 CC -----  
 DR EMBL; L25610; AAA16109.1; -.  
 DR EMBL; S67388; AAB29246.1; -.  
 DR EMBL; U09579; AAA85641.1; -.  
 DR EMBL; U03106; AAC04313.1; -.  
 DR EMBL; L26165; AAA19811.1; -.  
 DR EMBL; L47233; AAB59560.1; ALT\_INIT.  
 DR EMBL; Z85996; CAB06656.1; -.

DR PIR; S39357; S39357.  
 DR SWISS-2DPAGE; P38936; HUMAN.  
 DR MIM; 116899; -.  
 KW Cell cycle; Nuclear protein; Zinc-finger.  
 FT ZN\_FING 13 41 C4-TYPE (POTENTIAL).  
 FT DOMAIN 141 156 NUCLEAR LOCALIZATION SIGNAL (POTENTIAL).  
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Qy 1 KRRLIFSK 8  
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 Db 154 KRRLIFSK 161

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 AC Q14010;  
 DT 01-NOV-1996 (TrEMBLrel. 01, Created)  
 DT 01-NOV-1996 (TrEMBLrel. 01, Last sequence update)  
 DT 01-OCT-2000 (TrEMBLrel. 15, Last annotation update)  
 DE CYCLIN-DEPENDENT KINASE (FRAGMENT).  
 GN CIP1/WAF1.  
 OS Homo sapiens (Human).  
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;  
 OC Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.  
 OX NCBI\_TaxID=9606;  
 RN [1]  
 RP SEQUENCE FROM N.A.  
 RC TISSUE=TUMOR;  
 RX MEDLINE=95384154; PubMed=7655464;  
 RA Mousses S., Oezcelik H., Lee P.D., Malkin D., Bull S.B.,  
 RA Andrulis I.L.;  
 RT "Two variants of the CIP1/WAF1 gene occur together and are associated  
 RT with human cancer.";  
 RL Hum. Mol. Genet. 4:1089-1092(1995).  
 DR EMBL; L47232; AAB59559.1; -.  
 DR HSSP; P46527; 1JSU.  
 DR INTERPRO; IPR003175; -.  
 DR PFAM; PF02234; CDI; 1.  
 FT NON\_TER 1 1  
 SQ SEQUENCE 181 AA; 20083 MW; 4CCFA5112232D4F1 CRC64;

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Qy 1 KRRLIFSK 8  
 |||||  
 Db 171 KRRLIFSK 178



RESULT 1  
 US-07-970-462A-2  
 ; Sequence 2, Application US/07970462A  
 ; Patent No. 5302706  
 ; GENERAL INFORMATION:  
 ; APPLICANT: SMITH, JAMES R.  
 ; TITLE OF INVENTION: SENESCENT CELL DERIVED INHIBITORS OF  
 ; TITLE OF INVENTION: DNA SYNTHESIS  
 ; NUMBER OF SEQUENCES: 2  
 ; CORRESPONDENCE ADDRESS:  
 ; ADDRESSEE: HOWREY & SIMON  
 ; STREET: 1299 PENNSYLVANIA AVE., N.W.  
 ; CITY: WASHINGTON  
 ; STATE: D.C.  
 ; COUNTRY: USA  
 ; ZIP: 20004  
 ; COMPUTER READABLE FORM:  
 ; MEDIUM TYPE: Floppy disk  
 ; COMPUTER: IBM PC compatible  
 ; OPERATING SYSTEM: PC-DOS/MS-DOS  
 ; SOFTWARE: PatentIn Release #1.0, Version #1.25  
 ; CURRENT APPLICATION DATA:  
 ; APPLICATION NUMBER: US/07/970,462A  
 ; FILING DATE:  
 ; CLASSIFICATION: 536  
 ; PRIOR APPLICATION DATA:  
 ; APPLICATION NUMBER: US 07/808,523  
 ; FILING DATE: 16-DEC-1991  
 ; ATTORNEY/AGENT INFORMATION:  
 ; NAME: AUERBACH, JEFFREY I.  
 ; REGISTRATION NUMBER: 32,680  
 ; REFERENCE/DOCKET NUMBER: 225-102-CIP  
 ; TELECOMMUNICATION INFORMATION:  
 ; TELEPHONE: (202) 383-7451  
 ; TELEFAX: (202) 383-6610  
 ; INFORMATION FOR SEQ ID NO: 2:  
 ; SEQUENCE CHARACTERISTICS:  
 ; LENGTH: 164 amino acids  
 ; TYPE: amino acid  
 ; TOPOLOGY: linear  
 ; MOLECULE TYPE: protein  
 ; HYPOTHETICAL: NO  
 ; ANTI-SENSE: NO  
 ; ORIGINAL SOURCE:  
 ; ORGANISM: HOMO SAPIENS  
 ; STRAIN: SDI-1  
 ; IMMEDIATE SOURCE:  
 ; LIBRARY: Senescent cell derived cDNA library  
 US-07-970-462A-2

Query Match 100.0%; Score 38; DB 1; Length 164;  
 Best Local Similarity 100.0%; Pred. No. 0.25;  
 Matches 8; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 KRRLIFSK 8  
 |||||  
 Db 154 KRRLIFSK 161

RESULT 2  
 US-08-154-915-6  
 ; Sequence 6, Application US/08154915  
 ; Patent No. 5618669  
 ; GENERAL INFORMATION:  
 ; APPLICANT: Beach, David  
 ; APPLICANT: Xiong, Yue  
 ; TITLE OF INVENTION: Cyclin Complex Rearrangement and Uses  
 ; TITLE OF INVENTION: Related Thereto  
 ; NUMBER OF SEQUENCES: 6  
 ; CORRESPONDENCE ADDRESS:

```

; ADDRESSEE: LAHIVE & COCKFIELD
; STREET: 60 State Street
; CITY: Boston
; STATE: MA
; COUNTRY: USA
; ZIP: 02109
; COMPUTER READABLE FORM:
; MEDIUM TYPE: Floppy disk
; COMPUTER: IBM PC compatible
; OPERATING SYSTEM: PC-DOS/MS-DOS
; SOFTWARE: ASCII(text)
; CURRENT APPLICATION DATA:
; APPLICATION NUMBER: US/08/154,915
; FILING DATE: 19-NOV-1993
; CLASSIFICATION: 435
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: US 07/991,997
; FILING DATE: 17-DEC-1993
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: US 07/963,308
; FILING DATE: 16-OCT-1993
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: US 07/888,178
; FILING DATE: 26-MAY-1993
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: US 07/701,514
; FILING DATE: 16-MAY-1993
; ATTORNEY/AGENT INFORMATION:
; NAME: Vincent, Matthew P.
; REGISTRATION NUMBER: 36,709
; REFERENCE/DOCKET NUMBER: MII-026
; TELECOMMUNICATION INFORMATION:
; TELEPHONE: (617) 227-7400
; TELEFAX: (617) 227-5941
; INFORMATION FOR SEQ ID NO: 6:
; SEQUENCE CHARACTERISTICS:
; LENGTH: 164 amino acids
; TYPE: amino acid
; TOPOLOGY: linear
; MOLECULE TYPE: protein
US-08-154-915-6

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Query Match          100.0%; Score 38; DB 1; Length 164;
Best Local Similarity 100.0%; Pred. No. 0.25;
Matches      8; Conservative    0; Mismatches    0; Indels      0; Gaps      0;

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Qy      1 KRRLIFSK 8
        |||||
Db     154 KRRLIFSK 161

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RESULT 3
US-08-275-983B-4
; Sequence 4, Application US/08275983B
; Patent No. 5688665
; GENERAL INFORMATION:
; APPLICANT: Massague, Joan
; APPLICANT: Roberts, James M.
; APPLICANT: Koff, Andrew
; APPLICANT: Polyak, Kornelia
; TITLE OF INVENTION: Isolated p27 Protein, Nucleic Acid Molecules      Encoding Sa
; NUMBER OF SEQUENCES: 19
; CORRESPONDENCE ADDRESS:
; ADDRESSEE: LAHIVE & COCKFIELD
; STREET: 60 State Street, suite 510
; CITY: Boston
; STATE: Massachusetts
; COUNTRY: USA
; ZIP: 02109-1875
; COMPUTER READABLE FORM:

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; MEDIUM TYPE: Floppy disk
; COMPUTER: IBM PC compatible
; OPERATING SYSTEM: PC-DOS/MS-DOS
; SOFTWARE: PatentIn Release #1.0, Version #1.25
; CURRENT APPLICATION DATA:
; APPLICATION NUMBER: US/08/275,983B
; FILING DATE: 13-SEP-1994
; CLASSIFICATION: 435
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: US 08/179,045
; FILING DATE: 07-JAN-1994
; ATTORNEY/AGENT INFORMATION:
; NAME: Vincent, Matthew P.
; REGISTRATION NUMBER: 36,709
; REFERENCE/DOCKET NUMBER: MII-079CP
; TELECOMMUNICATION INFORMATION:
; TELEPHONE: (617)227-7400
; TELEFAX: (617)227-5941
; INFORMATION FOR SEQ ID NO: 4:
; SEQUENCE CHARACTERISTICS:
; LENGTH: 164 amino acids
; TYPE: amino acid
; TOPOLOGY: linear
; MOLECULE TYPE: peptide
; FRAGMENT TYPE: internal
US-08-275-983B-4

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Query Match          100.0%; Score 38; DB 1; Length 164;
Best Local Similarity 100.0%; Pred. No. 0.25;
Matches      8; Conservative    0; Mismatches    0; Indels    0; Gaps    0;

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Qy      1 KRRLIFSK 8
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Db     154 KRRLIFSK 161

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RESULT 5
US-08-574-043A-2
; Sequence 2, Application US/08574043A
; Patent No. 5807692
; GENERAL INFORMATION:
; APPLICANT: Kinzler, Kenneth W.
; APPLICANT: El-Deiry, Wafik
; APPLICANT: Vogelstein, Bert
; TITLE OF INVENTION: p21WAF1 Derivatives and Diagnostic
; TITLE OF INVENTION: Methods
; NUMBER OF SEQUENCES: 7
; CORRESPONDENCE ADDRESS:
; ADDRESSEE: Banner & Allegretti, LTD
; STREET: 1001 G Street, NW suite 1100
; CITY: Washington
; STATE: DC
; COUNTRY: USA
; ZIP: 20001
; COMPUTER READABLE FORM:
; MEDIUM TYPE: Floppy disk
; COMPUTER: IBM PC compatible
; OPERATING SYSTEM: PC-DOS/MS-DOS
; SOFTWARE: PatentIn Release #1.0, Version #1.25
; CURRENT APPLICATION DATA:
; APPLICATION NUMBER: US/08/574,043A
; FILING DATE:
; CLASSIFICATION: 514
; ATTORNEY/AGENT INFORMATION:
; NAME: Kagan, Sarah A.
; REGISTRATION NUMBER: 32,141
; REFERENCE/DOCKET NUMBER: 01107.49698
; TELECOMMUNICATION INFORMATION:

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; TELEPHONE: 202.508.9100  
; TELEFAX: 202.508.9299  
; INFORMATION FOR SEQ ID NO: 2:  
; SEQUENCE CHARACTERISTICS:  
; LENGTH: 164 amino acids  
; TYPE: amino acid  
; TOPOLOGY: linear  
; MOLECULE TYPE: protein  
US-08-574-043A-2

Query Match 100.0%; Score 38; DB 1; Length 164;  
Best Local Similarity 100.0%; Pred. No. 0.25;  
Matches 8; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 KRRLIFSK 8  
| | | | | | | |  
Db 154 KRRLIFSK 161